

Persistence in surgical training

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1. (Research)

What is the main objective of the research described in the thesis and what are the most important results and conclusions?

The aim of this dissertation is to contribute to a better understanding of residents' persistence in surgical training. The dissertation is underpinned by the job demands resources (JD-R) and the transformational leadership theories (1,2). Central in our research is the idea that persistence strongly depends on residents' work engagement, which is a positive wellbeing state at work whose main characteristics are dedication, vigor and absorption (1). We conducted four empirical studies using quantitative, qualitative and mixed methods designs, from the perspective of residents and surgeons. Our results highlight the importance of residents crafting their jobs within the surgical workplace to enhance their work engagement. In this way, they can increase the available resources and challenges in the clinical environment (i.e., autonomy and peer collaboration) and diminish those demands that hinder their performance (i.e., conflict, work-pressure). Such capacity is in keeping with the concept of job crafting (3). In this vein, we also highlighted that surgeons in charge of training have a paramount role on that capacity of residents to craft their jobs: they can do so through their leadership. To conclude, the present dissertation indicates that more attention should be paid to strengthening residents' job crafting as a crucial capacity of their self-regulated learning at the workplace. Additionally, the research also emphasises that more attention should be placed on surgeons' leadership to drive positive changes in those aspects of residents' training and development.

2. (Relevance)

What is the (potential) contribution of the results from this research to science, and, if applicable, to social sectors and social challenges?

Surgical training has been founded on rigour, hierarchies, high demands and competitiveness. Such characteristics of the environment, in turn, are precursors of negative consequences for the resident. The increasing rates of burnout and attrition of training programs, and the lack of work-life balance are some examples of such consequences. These consequences, additionally, have a negative impact on the normal operation of hospitals and, ultimately, in the sustainability of the surgical workforce. Thus, is of great importance that surgery, like other large medical specialties, is an indivisible and indispensable part of health care and equity (4).

This dissertation is relevant for the society because we gained a better understanding in how residents craft their jobs in the benefit of their wellbeing and persistence in training, in the benefit of the organization and, therefore, in the benefit of the sustainability of the surgical workforce. We also gained better insight in how surgeons can help residents to do so. Surgeons should offer

a supportive environment to strengthen the capacity of residents to optimize their jobs to enhance their work-engagement. As members of the training programs, surgeons must be aware of their responsibility to support residents to self-regulate their job at the workplace. These benefits are critical considering the challenges faced by healthcare systems around the world in terms of global surgery, such as the shortage of the surgical workforce, the raising of the global burden of surgical disease and its costs, and the negative consequences of unsafe surgical care (4). Therefore, all efforts aimed to overcome these challenges are of relevance to society.

3. (Target group)

To whom are the research results interesting and/or relevant?
And why?

The results are directed, in the first instance, to the **surgical residents**. This dissertation offers relevant information on how residents might craft different demands and resources at the workplace to improve their wellbeing. First, they can reflect on the importance of this capacity as part of their self-regulation in the workplace. Second, residents can seek for improvements on this capacity within the environment with their supervisors, peers and allied staff. Our results are also directed to **surgeons**. In the perceptions of residents, surgeons play an important role to strengthen the capacity of residents to control the work environment. Our results can assist surgeons to reflect and translate into practice different aspects of their modelling, connecting, coaching and supporting role for their residents at the workplace. With these implications in mind, our results can also be transferred to **residents and supervisors of other surgical specialties**, considering the similarities in the dynamics of workplace education. **Curriculum designers and program directors** also represent a target group of our research. They have a major role in incorporating formal training on the ability of residents to craft their job within the surgical curriculum. It has implications for workplace-based assessments, feedback and remediation, especially among those who have difficulties and struggle to control a complex environment for training. Those who are in charge of wellbeing policies in residency training, as part of the **Human Resources Management (HRM)**, can also benefit of our findings. It is very important that human resources developers take into account the active role of residents and supervisors within these policies. They can do so offering formal training in job crafting and leadership in the clinical environment. Inspired by our results, residents and supervisors might transform the work environment in a positive way, avoiding a passive role as recipients of the organizational policies. Ultimately, our results are relevant for **medical educational researchers** focused in workplace learning. Our results can stimulate further research on the importance of job crafting, wellbeing and performance in the clinical context for training.

4. (Activity)

In what way can these target groups be involved in and informed about the research results, so that the knowledge gained can be used in the future?

Two studies from this thesis (Chapters 2 and 3) are available as published manuscripts. Chapter 4 and 5 are currently under editorial review. The published manuscripts and those under review were submitted to journals aimed to different target groups (surgeons, medical educators and a general audience). The research has also gained interest at national and international conferences such as the Conference of the Association for Medical Education in Europe (AMEE 2016), the Rogano Conference (2016), the Maastricht University SHE (School of Health Professions Education) Academy (2016, 2017, 2018), the National Congress of the Colombian Association of Surgery (2017, 2019) and the Intermediate congress of the Colombian Association of Surgery (2018), among others. The results have been disseminated through the Division of Education of the Colombian Association of Surgery, academic conversations and local scenarios with strong presence of surgeons and residents. More speaking engagements for presentations are being scheduled in 2021. Links and key findings have also been shared on social media. The thesis will also be printed as a book and will be publicly available in 2021. In this venue, our presence at national and international conferences and on social media platforms over the next 1-2 years should help to expedite the further dissemination of our findings and facilitate interest and uptake of our results.

Finally, our results have implications for the design of specific interventions for residents and surgeons which can be summarized in: (a) how can we prepare residents to craft their jobs and, (b) how can we strengthen surgeons' leadership to assist residents to craft their jobs. In the discussion chapter we offer a description of the central elements of these interventions. The impact of such interventions may take longer (within 5 years) to produce.

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